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EXAMINER
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ART UNIT	PAPER NUMBER
1812	5

18M1

DATE MAILED: 03/02/93

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 12-23-92 Paper #4 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire _____ month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-24 are pending in the application.
   Of the above, claims 13, 17-24 are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-12, 14-16 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☒ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

This Office Action is in response to Paper #4 filed December 23, 1992. Claims 1-12 and 14-16 have been examined in the previous Office Action (Paper #2) and Claims 13 and 17-24 have been withdrawn from consideration by the Examiner as these Claims are directed to non-elected inventions.

Applicant's arguments have been fully considered but they are not deemed to be persuasive.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The rejection of Claim 15 under 35 USC 101 is withdrawn.

The rejection of Claims 6-10 and 15 under 35 USC 112, second paragraph is withdrawn.

Claims 3-10 and 14-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-45 of copending application Serial No. 07/488307. Although the conflicting claims are not identical, they are not patentably distinct from each other because these Claims all claim the cDNA encoding the CFTR and its expression and therapeutic compositions.

This is a *provisional* obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1 and 2 are provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1 and 7 of copending application Serial No. 07/488307. This is a *provisional* double patenting rejection since the conflicting claims have not in fact been patented.

Claims 1-10 and 14-16 are provisionally rejected under 35 U.S.C. § 102(e) as being anticipated by copending application Serial No. 07/488307.

Copending application Serial No. 07/488307 has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. § 102(e) if patented. This provisional rejection under 35 U.S.C. § 102(e) is based upon a presumption of future patenting of the conflicting copending application.

This provisional rejection under section 102(e) might be overcome either by a showing under 37 C.F.R. § 1.132 that any unclaimed invention disclosed in the copending application was derived from the inventor of this application and is thus not the invention "by another", or by a showing of a date of invention of any unclaimed subject matter prior to the effective U.S. filing date of the copending application under 37 C.F.R. § 1.131.

The Examiner acknowledges the Applicants response to these double patenting rejections, that is, to file a terminal disclaimer in compliance with 37 CFR 1.1321 when/if the conflicting claims issue as a patent. However, the Examiner must restate these rejections for the record.

Claim 1 is rejected under 35 U.S.C. § 103 as being unpatentable over Riordan et al. as discussed in the previous Office Action.

Claims 15 and 16 are rejected under 35 U.S.C. § 103 as being unpatentable over Riordan et al. as discussed in the previous Office Action.

Claims 2, 4-6, and 14 are rejected under 35 U.S.C. § 103 as being unpatentable over Riordan et al. as applied to claims 1, 15, and 16 above, and further in view of Sambrook et al. as discussed in the previous Office Action.

Claims 3 and 7-10 are rejected under 35 U.S.C. § 103 as being unpatentable over Riordan et al. as applied to claims 1, 2, 4-6, 14, and 16 above, and further in view of Nichols as discussed in the previous Office Action.

The Examiner has chosen to discuss these four rejections together because the Applicants arguments concerning these rejections are the same.

Applicants argue that the Riordan et al. references does not disclose a single cDNA encoding CFTR but isolated overlapping fragments of the gene encoding CFTR. Applicants allege that it is a difficult to construct a full-length cDNA encoding CFTR because of the instability of the DNA sequence within the coding region. However, this argument is not relevant to the claimed invention, that is, the cDNA encoding CFTR. Riordan et al. teach this sequence and this sequence can be made synthetically, therein circumventing the problems of recombinant production of CFTR. The placement of this cDNA into any vector is obvious.

A note to the Applicants:

In view of the Applicants arguments throughout Paper #4, it appears that their invention may center around the plasmid/vector they used to circumvent the problem of expressing CFTR based on the instability of the gene. Applicants are encouraged to focus their claims on the vectors used for the successful expression of CFTR, keeping in mind the antecedent basis of such claims in the the specification and any deposits of biological materials that may need to be made, depending on the claimed invention.

Claims 11 and 12 are rejected under 35 U.S.C. § 103 as being unpatentable over Riordan et al. as discussed in the previous

Office Action. Applicants argue that the diagnosis of CFTR dysfunction by determining the presence or absence of band C which represents the mature, fully glycosylated CFTR is not taught by Riordan et al. The Examiner agrees. However, to diagnose CFTR dysfunction based on band C is obvious in view of the teachings of Riordan et al. Riordan et al. teaches that the mature CFTR has a predicted molecular weight of 168kD (page 1070, col. 2), close enough to that weight given by the Applicants for band C given that Riordan et al. did not assess the molecular weight of CFTR by SDS-PAGE. Given that the Phe^{508} is located in a nucleotide binding fold (page 1070, 1071) between the two most highly conserved segments within the CFTR sequence and that this region is of functional importance and the absence of Phe^{508} may affect the conformation of CFTR so as to inactivate the protein, it is clear that the CFTR is not properly folded. Glycosylation or folding effects the apparent molecular weight of proteins as assessed on gels. Therein, to assess the presence or absence of the band corresponding to the mature, functional CFTR is obvious in view of the teachings of Riordan et al.

Claims 1-10, 14, and 15 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification as discussed in the previous Office Action.

Applicants argue that producing a single cDNA sequence encoding CFTR enables the use of CFTR in gene therapy. The Examiner strongly disagrees because one of ordinary skill in the art cannot predict the successful use of CFTR gene therapy in the treatment of CF. It would require undue experimentation to determine if such therapy is useful.

The disclosure is objected to because of the following informalities: There continues to be numerous mistypes and misspellings throughout the specification and claims. For example, the Applicants are simply referred to page 4, line 17, for example and Claim 12 or Claim 16 (there are two in each). These are only a few mistypes or misspellings throughout the application and the Examiner will not seive through the entire specification to point out each one. Appropriate correction is required.

The Examiner beleives that all pertinent issues have been addressed.

Serial Number 07/613592

Art Unit 1812

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen Cochrane Carlson, Ph.D. whose telephone number is (703) 308-0034.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Robert J. Hill

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SUPERVISORY PATENT EXAMINER
GROUP 1800